

A REVISED KEY TO THE VARIETIES OF *RHAGIUM BIFASCIATUM* F., (COL.: CERAMBYCIDAE)

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More than forty years have elapsed since the publication of the keys to the identification of the varietal forms of *Rhagium bifasciatum* F., most of which have been taken in this country. Some more varieties have been found, described and figured since then, such that a new, revised and improved key is needed to accommodate them; and at the same time to correct a few inaccuracies, to which attention is drawn after the key.

The larva of *R. bifasciatum* is of economic importance in that it rarely attacks living trees, unlike some Longicorns, or if it does it is usually confined to the deteriorating parts — dying limbs etc. The larva is beneficial to forestry: its predilection for rotten moist wood — it frequently takes over from the ravages caused by other Cerambycids, such as *Asemum striatum* L. and *Arhopalus rusticus* L. —helps to break down felled logs, boles, stumps and roots.

Polyphagous in habit, the larva has been found with the following: alder, ash, beech, birch, buckthorn, chestnut, elder, fir, hawthorn, hornbeam, larch, laurel, oak, pear, pine (Scots pine is a favourite pabulum), poplar, rowan, sour cherry, spruce and willow. Donovan amusingly states, "It is generally found in putrid flesh."(!) Under normal circumstances larval development takes two years, depending upon when ovipositing occurs and on local conditions.

Pupation, in either sapwood or deeper down in the heartwood if sufficiently wet and rotten, takes place in the late summer months and eclosion thence until the winter, but the imago stays in its pupal cell throughout the winter, emerging in the spring. All three stages of development are often present in the same habitat, larva, pupa and semi-dormant inactive perfect insect; consequently the imagines may be found throughout the year, just resting under the loose bark.

A number of parasitic Hymenoptera prey on the larva, among which are enumerated: *Coeloides (Coelobracon) initiator* F., *Bracon leucogaster* Zgrl., *Echthrus reluctator* L., *Xorides rufipes* Gr., *X. irrigator* F., *Ischnoceros filicornis* Kreichb., *I. caligatus* Grav., *Colecentrus excitator* Poda and *Iphiaulax impostor* Scop. It is also parasitized by the threadworm *Bradynema strasseni* Wülker. Other predators include the Coleoptera, *Nudobius lentus* Er., *Opillo mollis* L. and *Thanasimus formicarius* L.

The adult beetle's habits differ from those of many of our Longicorns in that it is not found feeding on flowers; more usually it occurs crawling along the ground, taking off on short flights to settle again either there or on adjacent timber lying in sunlit woodland rides and open spaces, somewhat reminiscent of the Tiger beetle (*Cicindela*), but \*



Fig. 1. Distribution of *Rhagium bifasciatum* F. in the British Isles.

it has been swept from dogrose, apple and hawthorn blossom, rhododendrons, *Viburnum*, various *Umbelliferae* and freshly cut fir and pine branches.

The imagines have been found in almost every English county, and apart from a few central areas, in most of Wales. Scotland too has been well worked, with records from the Lowlands to the Highlands, the Inner Hebrides and the Clyde islands. Irish records are scantier, confined largely to the south-western, northern and south-eastern coastal counties, due more to a lack of observers than to that of the beetle (see distribution map).

*R. bifasciatum*, despite its general occurrence throughout the British Isles, is a local insect; when it is found it may often be by the hundred. There is no hard evidence to suggest that its varieties are confined to any particular region or subject to special climatic or other conditions; for example, the nigrescent forms have been captured in one end of the same log as the commoner bleached variety at the other. Nevertheless, hardly any variations have been recorded from Scotland or the Principality. Several Continental authorities opine that the northern and sub-alpine regions of Europe produce the most varieties.

There is some disagreement about this: in northern England high numbers have been captured in Lancashire, Yorkshire and Cheshire; in the south, Surrey, that popular hunting ground, has contributed as many colour forms as any other district. Further, those authors emphasize that the albinotic forms are more likely to be encountered in montane areas. That is not, however, the general experience; if the locality is right — ancient neglected fellings, especially old pine woods, for instance, and at any height — varieties have abounded, reaching proportions of 25- 30% of the total *bifasciatum* population; elsewhere, in apparently similar areas and conditions, only the type form occurs. It may be stated unequivocally that while the yellow varieties are the commonest with us, the melanic, and particularly the rufous forms, are decidedly rare, of which there are very few recorded British examples.

Great care has been taken to compare Professor Villiers' and the late Dr Blair's excellent drawings of the varieties of *R. bifasciatum* with the British keys of 1945-46; with hardly an exception, figures and descriptions tally. This cannot be said of the sketches by M. Podany who is at pains to comment that he found it difficult to match the elytral patterns with the details given by their authors, who, he states, should have illustrated their written work. It is the unfortunate case that many of his own figures do not bear any relation at all to the varieties that have been described. It suffices to say that of the 22 figures of *R. bifasciatum* in his monograph on the genus only eight may be equated with the variations elsewhere published. It is not the intention to traverse M. Podany's work other than to add that his own text does not correspond with the illustrations he provides.

On the Continent variation in *Rhagium bifasciatum* is well known (and as well documented) as it is here, holding a recognized place in the European and palaeartic catalogues. This is not so, where it concerns the Cerambycidae, in the latest British Check List, remarkable as much for its omissions as for its additions.

**KEY TO THE VARIETIES OF *RHAGIUM BIFASCIATUM* F.**

“Les variétés sont des modifications visibles . . .”

Maurice Pic

(Bracketed numbers and letters link contrasting forms.)

- I. Yellow fasciae reduced (II).  
 a. Ground colour largely bronze-black; marginal red along elytral edges and apex normal (b).  
 Anterior fasciae divided, reduced or absent.
1. Posterior fasciae also absent . . . . . v. *infasciatum* Pic (3)
  2. Posterior fasciae divided and greatly reduced . . . v. *blairi* Kaufm. (1)
  3. Posterior fasciae whole but reduced . . . . . v. *bistrinotatum* Pic (2)
- b. Ground colour conspicuously red (a).
4. Encroaches upon apical third of elytra. Anterior fasciae whole; posterior fasciae obliterated . . . . . v. *unifasciatum* Muls. (6)
  5. Spreads from apex to anterior fasciae; posterior fasciae slightly reduced or divided . . . . . v. *deyrollei* Pic (8)
  6. Anterior fasciae whole; posterior fasciae reduced to a single maculation . . . . . v. *apicepunctatum* Podany (4)
  7. Covers whole elytra except basal and apical thirds; fasciae completely absent or anterior ones faintly outlined . . . . . v. *bicolor* Oliv. (25)
  8. Elytra almost entirely red; extreme base and a thick sutural line between fasciae, black; fasciae almost normal . . . . . v. *dvoraki* Niedl (5)
  9. Elytra largely red except for a sub-sutural black patch; anterior fasciae normal; posterior fasciae absent v. *rufum* Prell (26)
- II. Yellow fasciae enlarged but *not* confluent (III).  
 Ground colour largely bronze-black; marginal red normal.  
 Fasciae dentate along lower edges, smoother above. Elytral apex broadly red.
10. Posterior fasciae broad, almost meeting laterally along suture, leaving dark ground colour between the two sets prominent . . . . . v. *latefasciatum* Pic = *fasciatum* Pic (11)
  11. Both fasciae broadened and strongly dentate . . . . . v. *dentatofasciatum* Kaufm. (10)
  12. Posterior fasciae very broad, spreading towards elytral apex . . . . . v. *lituratum* Füg. (13)
  13. Anterior fasciae spread almost to elytral shoulders. Apical third of elytra entirely yellow. Suture edged black. Dark elytral background roughly cruciform . . . . . v. *mediofasciatum* Pic (23)\*
- III. Yellow fasciae enlarged and confluent (I).  
 Marginal red normal.
- c. Elytral striae outlined with black streaks, either interrupted or of varying lengths (d).

\* *vide* notes on nomenclature *infra*.

14. Elytral base broadly, and suture narrowly bronze-black. Fasciae meet along suture and extend almost to elytral shoulders and apex. With three very short central to marginal black streaks and a single sub-sutural one at elytral apex . . . . . *v. quentini* nov. (15)
15. Fasciae do not quite reach shoulders and apex. With a small sub-sutural streaky black maculation at elytral apex . . . . . *v. bimaculatum* Marsh. (14)
16. With two black median lines, the longer nearer the suture; occasionally with traces of a third streak at the elytral margins or apex . . . . . *v. virgatum* Kaufm. (17)
17. With two or three longish, sometimes broken black lines . . . . . *v. nigrolineatum* Donovan (16)
18. Fasciae cover two-thirds of elytra, leaving base black and apex red. With three long uninterrupted black lines . . . . . *v. multilineatum* Pic (19)
19. Elytra entirely yellow with three long but feinter broken lines . . . . . *v. andreae* Vill. (18)
- d. Elytra without black streaks or lines (c).
20. Background diagonally divided: bronze-black from base to beyond posterior fasciae along suture; red from humeral boss along elytral margins to a broad apical third. Fasciae narrowly joined medianly forming overall an elongated broken O pattern . . . . . *v. klinzigi* Podany (24)  
Anterior and posterior fasciae produced to meet along suture.  
Elytral base and most of apex bronze-black.
21. Connection narrow . . . . . *v. gravei* Hubenth. (22)
22. Connection broad . . . . . *v. connexum* Everts (21)
23. Similar to *mediofasciatum*, but fasciae joined at the margins . . . . . *v. apicepallidum* Pic (13)
24. Broad fascial connection meets at both suture and margins; with a large central sutural black maculation . . . . . *v. medionotatum* Pic (20)
25. Fascial connection almost complete; elytral base and apex bronze-black; margins narrowly red . . . . . *v. ornatum* F. = *dorsalis* Marsh. = *ecoffeti* Muls. (7)
26. Elytra almost wholly yellow save a black triangular scutellar patch . . . . . *v. lebisi* Dayr. (9)
27. Similar, fused fasciae occupying two-thirds of elytral surface; elytral margins and tip of apex narrowly red; base broadly black . . . . . *v. simoni* Pic (28)
28. Extreme elytral base only dark, otherwise entirely yellow . . . . . *v. ictericum* Schleicher (27)

## NOTES ON NOMENCLATURE

2. v. *blairi* Kaufm.: when this figure was first published in 1944, the editor of the *Entomologist's mon. Mag.* commented that it was on the small side. That, and the poor quality of war-time paper, resulted in the reduced posterior elytral maculations being nearly obliterated upon publication. Villiers' f. 167 does not represent the true *blairi*, but is almost identical with his version of *infasciatum* Pic, f. 168. Podany's two diagrams do not fit at all: the posterior maculations are wrongly slanted.
5. v. *deyrollei* Pic: described by Pic from Trebizond, Turkey. The only British specimen seen is that arranged by J.R. Hardy *in coll.* Manchester Museum.
11. v. *dentatofasciatum* Kaufm. *nec* Pic; wrongly attributed by Villiers (and obviously a *lapsus calami*). The variety was first described by Kaufmann in 1945.
13. v. *mediofasciatum* Pic *nec* 1912: = ? *latefasciatum* (Villiers, f. 189). This name is quoted with bibliographical references by Winkler, Blair, Podany etc, but these are totally incorrect; Villiers omits the name but its description meets that of *latefasciatum*, with which in future taxonomists may tentatively wish to sink it as synonymous.
14. v. *quentini mihi*: named in honour of M. R.M. Quentin of the Department of Applied Entomology, Natural History Museum, Paris.
15. v. *bimaculatum* Marsh.: this is a unique example and the type *teste* Blair, now in the J.F. Stephens collection (BM (NH)), and presumably acquired from the D. Francis cabinet, mentioned by Marsham. The specimen is data-less; it has been suggested that it was collected in northern England: there is no sound evidence for this.
17. v. *nigrolineatum* Donovan: also represented in the Stephens collection by a single specimen, *sine data*, assumed to come from the Francis collection. It is illustrated by Donovan from an example taken by Jean Francillon, with acknowledgements to the Marsham MS. Plavil'shchikov gives it in his Soviet lists; it is excluded by Dr Heyrovsky.
- 21 & 22. v. *gravei* Hubenth. and v. *connexum* Everts: these are sufficiently distinct in appearance, based on the difference in the width of the fascial confluence to retain the latter as a separate variety.
23. v. *apicepallidum* Pic: Villiers' f. 186 does not correspond with Simon's f. 4/C; hence, it has been assigned to group III d.
24. v. *medionotatum* Pic: this was originally described from Hungary.
25. v. *ornatum* F.: beautifully illustrated by Martyn and the earliest depiction in British entomological works, predating the Marshamian diagnosis (v. *dorsalis*) by a decade. Figured by

Donovan two years later. The Stephensian example (labelled *dorsalis* Marsh.) was also possibly acquired from the D. Phillips collection; first captured near Manchester.

27. v. *lebisi* Dayr.: placed by Villiers in the group with a red elytral background. After careful consideration of Dayrem's article, the emphasis of the description is on balance yellow with a reddish tinge (*jaune rougeâtre*) — Dayrem makes a point of referring to the elytral margins as pale red rather than reddish-yellow. Dr Blair was in agreement with this. *Lebisi* may have lost some of its butter yellow coloration and have darkened to a deeper tint when examined by Professor Villiers.

Podany depicts the overall colour as yellow; Pic, too refers to the elytra as characteristically 'clair'.

28. v. *simoni* Pic *nec* Blair: surprisingly overlooked by Villiers who illustrates *apicepallidum* from Pic's same paper. By a strange coincidence Pic had named this variety *simoni* late in 1939, a fact evidently unknown to Blair who also named it *simoni* a year later, an oversight perhaps due to a failure in exchanging publications because of war-time restrictions. Blair had named this form based on Simon's sketch and on two specimens found separately by some schoolboys near Harrogate, Yorkshire. These beetles are now in the Uthhoff-Kaufmann collection of British Cerambycidae, Manchester Museum.

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